

PUBLIC ABSTRACT

Applicant (primary) name: Stolar Research Corporation

Applicant's address:	<u>848 Clayton Highway,</u>	<u>Raton,</u>	<u>NM</u>	<u>87740</u>
	Street	City	State	Zipcode

Tentative

Team Members (if any): (listing represents only participants at time of application, not necessarily final team membership)	<u>CONSOL Energy, Morgantown, WV 26505</u>			
	Name	City	State	Zipcode

San Juan Coal Company, Waterflow, NM 87421

Name	City	State	Zipcode
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(Use continuation sheet if needed.)

Proposal Title: **Demonstration of Upstream Clean Coal Technology to Reduce Ash, Sulfur, and Heavy Metals in Run-of-Mine Coal**

Commercial Application: **9** New Facilities **X** Existing Facilities

9 Other, Specify: _____

Technology Type: Drillstring radar and radio imaging to locate geologic structure anomalies

Estimated total cost of project:
(May not represent final negotiated costs.)

Total Estimated Cost: \$ 2,398,581

Estimated DOE Share: \$ 973,581

Estimated Private Share: \$ 1,425,000

PUBLIC ABSTRACT (cont=d)

Anticipated Project Site(s): To be determined
Location (city, county, etc.) State Zipcode

Location (city, county, etc.) State Zipcode

Location (city, county, etc.) State Zipcode

Type of coal to be used: Not applicable
Primary Alternate (if any)

Size or scale of project: Not applicable
Tons of coal/day input

And/or

Commercial-scale demonstration of advanced drilling and imaging
technology in an operating coal mine(s)

Megawatts, Barrels per day, etc.
Other (if necessary)

Duration of proposed project: 24
(From date of award) (Months)

PRIMARY CONTACT:

For additional information,
interested parties should contact: Name

Larry G. Stolarczyk, Sc.D.

President and Chief Technology Officer

Position

(505) 445-3607

Telephone Number

Stolar Research Corporation

Company

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e-mail address

848 Clayton Highway

Address

Raton New Mexico 87740

City State Zipcode

Alternative Contact:

To be determined

Name

Position

()

Telephone Number

Company

e-mail address

Address

City

State

Zipcode

PUBLIC ABSTRACT (cont=d)

Brief description of project:

Consistent with the objective of the Clean Coal Power Initiative (CCPI) to reduce emissions from coal-fired power plants, the proposed project will demonstrate how upstream clean coal technology can reduce ash, sulfur, and heavy metals in run-of-mine (ROM) coal as a means to achieve cleaner coal combustion processes. From a value chain point of view, reducing ash, sulfur, and heavy metals in ROM coal is significantly less expensive and of greater benefit to society than removing the equivalent ash, sulfur, and heavy metals during or after the combustion process. Secondly, the technology to be demonstrated will improve the efficiency of coal mine methane (CMM) production, reduce wastewater production in coal bed methane (CBM) fields, and prevent the spoiling (sterilization) of coal reserves by conventional CBM production processes. Since cleaner coal extraction, as well as CMM and CBM production, depend upon coal-bed geology, the project proposed by Stolar Research Corporation will demonstrate advanced drilling and structural imaging ahead of mining technology in coal beds.

The advanced drilling technology involves the drilling of horizontal in-mine boreholes through the center of a coal seam with a measurements-while-drilling (MWD) drillstring radar (DSR) system. In order to accomplish MWD navigation through undulations in a coal bed, the DSR technology will be added to the drillstring just behind the downhole motor.

The DSR technology will permit coal seam thickness mapping along the borehole as the drilling process occurs. The seam height and roof and floor sedimentary rock type will also be determined from measurements made while drilling. In addition, coal quality will be determined by measuring the bulk coal dielectric constant, while measurement of the vector dielectric constant will allow determination of the heading of the face cleat. The dielectric constant information is needed to determine the distance to the coal interface with the boundary sedimentary rock.

Once the first horizontal borehole has been completed, a second parallel borehole will be completed at least 1,000 feet from the first. Novel plastic casing techniques will be developed as a means of inserting radio imaging method (RIM-IV) instrumentation in the horizontal boreholes within the coal bed. The insertion system will be used to maneuver the RIM-IV receiver along the borehole and acquire the data for 3-D tomographic processing. The resulting 3-D tomography of the coal seam will provide high-resolution images of geologic anomalies that can be avoided during mining. The value of this practice is supported by the experience at the American Electric Power (AEP) Meigs mines, for example, that have documented significant increases in ROM coal ash when mining through geologic disturbance zones.

By incorporating the knowledge of the coal seam that is obtainable by the combination of the DSR and RIM-IV technologies, advanced geologic mapping will improve ROM coal quality and reduce the surface environmental problems of mine wastes. Coal that is cut cleaner by employing the technologies to be demonstrated in the proposed project will be able to be combusted with reduced overall environmental impacts and at lower cost.